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ABSTRACT

Following a brief discussion of some characteristics of the Amish culture and schools, data from the Iowa Test of Basic Skills are reported for 23 pupils in grades 3, 4, 6, 7, and 8 in Pleasant Hill School near Bloomfield, Iowa. Thirteen pupils scored at or above the fifteenth percentile in mathematics concepts; 17 were at or above that level in problem solving; and all 23 were above the fifteenth percentile in computation. For the composite score, 19 pupils scored at or above the fifteenth percentile. (MNS)

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OLD ORDER AMISH PUPILS, CULTURE, AND MATHEMATICS ACHIEVEMENT

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OLD ORDER AMISH PUPILS, CULTURE, AND MATHEMATICS ACHIEVEMENT

The Old Order Amish represent a unique culture in American society. Old Order Amish can readily be recognized in the United States, among other ways, with their use of horses and buggies for transportation purposes as compared to the utilization of cars with air conditioning and power steering. Additional values adhered to by Old Order Amish include

1. using draft horses and horse-drawn farm machinery instead of tractors and self-propelled combines with air-conditioned cabs and hydraulic lifts.

2. women wearing dresses whose sleeve length generally extends to the wrists and whose general length extends to the ankles. These dresses have a very high neckline. Amish men wear beards (no mustaches), suspenders, and black hats in many situations. Bright colors, stripes, and checks are not permitted in color of clothes.

3. most Amish children attend their own church-supported parochial schools. Generally, Old Order Amish adults are selected as teachers. Eighth grade education is terminal for all pupils. The four r's receive heavy emphasis in Amish schools -- reading, writing, arithmetic, and religion. Social studies and science are also taught with reading emphasized heavily as a means of learning. A subject-centered, rather than an activity-centered, curriculum is in evidence in Amish education.

4. no electrical outlets exist in Amish schools. Thus, no audio-visual aids are utilized. Horses driven to school by Amish pupils are kept in the horse barn on the school grounds. Closed buggies and open carriages are lined up near the fence and horse barn. Water is pumped by hand from a pump near the school building. Swings, merry-go-round, and teeter-totters represent playground equipment for Amish pupils. Softball in season is enjoyed

by both boys and girls. Outdoor privies, not indoor toilets, are in evidence on the school grounds.

Amish Education

Amish pupils are mannerly and quiet in the classroom. They appear to be excellent listeners. When an Amish teacher is working with a set of fourth grade pupils, for example, other learners inwardly depend upon themselves to complete required work at their own desks. The desks are arranged in rows and columns. Generally, there are no raised hands to have statements and questions repeated after the completion of a recitation with teacher involvement. An older pupil may help a younger learner when the need arises. Otherwise, Amish children individually continue to complete schoolwork at their desks. Assignments for each curriculum area are written on the chalkboard for pupils to follow.

Amish culture emphasizes "in the sweat of thy brow, thou shalt eat bread." Modernism and new trends are not emphasized as a way of life. Thus, no electrical appliances, radios, or television sets are in evidence in the home setting. The Amish are exempt from paying money into Social Security. More important for the Old Order Amish is that they want no governmental help as to disability, as well as old age and survivors' insurance from Social Security funds. In times of need and disaster, Amish come to aid each other as is necessary from death, sickness, and natural disasters. For example, if death of the husband strikes a home, Amish neighbors pitch in to take care of the farm work voluntarily and with no cost involved.

The writer, during the past five years, has frequently visited Pleasant Hill School, a one-room Old Order Amish parochial school, located

west of Bloomfield, Iowa. The question arises many times as to how well Old Order Amish children achieve in their own parochial schools. Results of Pleasant Hill pupils from the mathematics section of the Iowa Test of Basic Skills, administered in February, 1980, will now be discussed.*

Six third grade pupils achieved the following in mathematics, according to the Iowa Test of Basic Skills:

	Concepts		Problems		Computation		Total	
	GE**	PR***	GE	PR	GE	PR	GE	PR
Student 1	4.5	79	5.5	97	5.0	98	5.0	94
Student 2	3.4	47	3.1	38	4.5	91	3.7	60
Student 3	2.1	6	2.2	14	3.9	72	2.7	17
Student 4	2.7	21	2.6	24	4.0	76	3.1	34
Student 5	3.6	54	3.9	62	5.6	99	4.4	82
Student 6	4.5	79	4.5	81	4.3	87	4.4	82

Old Order Amish third grade pupils in Pleasant Hill School, in general, scored highest in percentile rank in arithmetic computation, followed by problem solving, and then concept development. Three pupils scored below a percentile rank of fifty in the development of concepts, e.g., percentile ranks of six, twenty-one, and forty-seven. The remaining three pupils in the third grade achieved percentile ranks of 54, 79, and 79 in concept development.

In problem solving, three pupils had a percentile rank below fifty, e.g., 14, 24, and 38. Three remaining pupils had percentile ranks of 62, 81, and 97 in problem solving.

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*Test scores from computerized Student List Report, mid-year 1980.

**GE = Grade equivalent

***PR = Percentile rank

The highest third grade achievement in arithmetic occurred in computation with percentile ranks in ascending order of 72, 76, 87, 91, 98, and 99.

Mathematics skills composite score of the six third grade pupils in ascending order of percentile ranks were 17, 34, 60, 82, 82, and 94.

Seven fourth grade pupils achieved the following in mathematics, according to the Iowa Test of Basic Skills:

	Concepts		Problems		Computation		Total	
	GE	PR	GE	PR	GE	PR	GE	PR
Student 1	4.5	50	4.8	59	5.1	77	4.8	62
Student 2	4.0	35	4.8	59	5.3	83	4.7	59
Student 3	3.3	15	3.3	19	5.2	80	3.9	31
Student 4	3.8	29	6.2	91	5.4	85	5.1	71
Student 5	4.2	41	6.2	91	5.1	77	5.2	74
Student 6	3.8	29	6.2	91	5.9	94	5.3	77
Student 7	4.5	50	5.2	70	5.7	91	5.1	71

Seven fourth grade pupils, in general, scored highest in percentile rank, in arithmetic computation, followed by problem solving, and then concept development. Five of seven pupils scored below a percentile rank of 50 in concept development, e.g., percentile ranks of 15, 29, 29, 35, and 41. The remaining two pupils each had a percentile rank of 50 in concept development.

In problem solving, one pupil of seven had a percentile rank below 50, e.g., a percentile rank of 19. The remaining six fourth grade pupils had ascending percentile ranks of 59, 59, 70, 91, 91, and 91.

All fourth grade pupils achieved above a percentile rank well above fifty in computation. These were in ascending order - 77, 77, 80, 83, 85, 91, and 94.

Mathematics skills composite score of the seven fourth grader pupils

revealed the following percentile ranks in ascending order: 31, 59, 62, 71, 71, 74, and 77.

There were no fifth grade pupils who completed the Iowa Test of Basic Skills in Pleasant Hill School, 1979-80 school year.

Five sixth grade students achieved the following in mathematics, according to the Iowa Test of Basic Skills,

	Concepts		Problems		Computation		Total	
	GE	PR	GE	PR	GE	PR	GE	PR
Student 1	5.7	31	6.5	50	8.6	98	6.9	61
Student 2	7.7	74	9.0	94	8.0	91	8.2	88
Student 3	8.3	83	9.0	94	8.9	99	8.7	95
Student 4	7.5	70	8.3	87	8.3	95	8.0	85
Student 5	7.7	74	8.6	90	8.6	98	8.3	90

Five sixth grade pupils, in general, scored highest in percentile rank in arithmetic computation, followed by problem solving, and then in concept development. One pupil ranked below a percentile rank of fifty, e.g., a percentile rank of 31. Four other sixth grade pupils in ascending order had the following percentile ranks: 70, 74, 74, and 83.

All five sixth graders had a percentile rank of 50 and higher in problem solving, e.g., percentile ranks of 50, 87, 90, 94, and 94. All five sixth grade pupils had a percentile rank of 90 and higher in arithmetic computation with ascending order of percentile ranks of 91, 95, 98, 98, and 99.

Mathematics skills composite score of sixth grade pupils in ascending order of percentile ranks were 61, 85, 88, 90, and 95.

Three seventh grade pupils achieved the following in mathematics, according to the Iowa Test of Basic Skills:

	Concepts		Problems		Computation		Total	
	GE	PR	GE	PR	GE	PR	GE	PR
Student 1	8.2	62	10.8	97	9.9	99	9.6	92
Student 2	5.3	10	6.5	32	7.6	53	6.5	30
Student 3	7.3	46	7.3	46	9.4	95	8.0	62

Three seventh grade pupils, in general, scored highest, percentile rank, in arithmetic computation followed by problem solving and concept development, in sequence. Two pupils scored below a percentile rank of 50 in concept development, e.g., percentile ranks of 10 and 46. The remaining seventh grade pupil had a percentile rank of 62 in concept development.

Two pupils scored below a percentile rank of 50 in problem solving, e.g., percentile ranks of 32 and 46. The third pupil had a percentile rank of 97 in problem solving.

All three seventh grade pupils scored above a percentile rank of 50 in arithmetic computation with the following ascending order of percentile ranks: 53, 95, and 99.

Mathematics skills composite score of the seventh grade pupils in ascending order of percentile ranks were 30, 62, and 92.

Two eighth grade pupils achieved the following in mathematics, according to the Iowa Test of Basic Skills:

	Concepts		Problems		Computation		Total	
	GE	PR	GE	PR	GE	PR	GE	PR
Student 1	9.0	59	9.2	64	9.6	81	9.3	70
Student 2	9.6	69	10.9	91	11.1	99	10.5	90

Two eighth grade pupils scored highest, percentile rank, in arithmetic computation, followed by problem solving and then concept development. The two eighth grade pupils had percentile ranks of 59 and 69 in concept development. In problem solving, the eighth grade pupils revealed percentile ranks

of 64 and 91, whereas in computation the percentile ranks were 81 and 99. The composite mathematics skills percentiles for each pupil, in ascending order, were 70 and 90.

In Conclusion

Thirteen of twenty-three Old Order Amish pupils in Pleasant Hill School, near Bloomfield, Iowa scored on the fiftieth percentile rank or higher in developing mathematics concepts. Seventeen of twenty-three pupils revealed a percentile rank of fifty or higher in problem solving. All twenty-three pupils scored above the fiftieth percentile rank in computation. Nineteen of twenty-three pupils revealed a percentile rank of fifty or higher in the composite mathematics skills.

Mathematics has utilitarian values for the Old Order Amish, a farming population. In farm work, determining the weight of livestock, the grain yield in bushels per acre of a field, the cost of lumber to build buildings, the cost of cloth to sew clothes, among others, is very useful and practical. Thus, it would appear that a study of practical applications for arithmetic might indeed be purposeful for Old Order Amish pupils.

Vocabulary test results of Old Order Amish pupils in Pleasant Hill School, according to the Iowa Test of Basic Skills, reveal that five of 23 pupils ranked above the fiftieth percentile. Since Amish children do not have access to radio, television, and numerous newspapers and magazines in the home setting, the Iowa Test of Basic Skills might not be valid to measure pupil achievement in vocabulary growth. Amish culture places high priority on Biblical knowledge as well as traditional methods of farming. Relevant understandings, skills, and attitudes toward arithemtic and its use are important in both traditional and modern methods of farming.